nose); 5-8 ppm (Throat, eye and mucous membrane irritation); 30 ppm (Intense coughing fits); 34-51 ppm (Lethal in 1 to 1.5 hours exposure); 40-60 ppm(Exposure for 30-60 minutes may cause upper respiratory irritation, pulmonary edema, or bronchopneumonia); 100 ppm (May be lethal after 50 minutes exposure (estimated)); 430 ppm (Lowest concentration known to cause lethality after 30 minutes of exposure); 1000 ppm (May be fatal within a few deep breaths). Odor does not provide an adequate warning of exposure. It is not known whether humans develop tolerance.

CHRONIC EXPOSURE:
Long term overexposure may produce upper airway changes leading to an increased prevalence of colds, shortness of breath, and reactive airway dysfunction syndrome.

SKIN CONTACT:
ACUTE EXPOSURE:
Brief contact may cause skin burns and permanent skin damage. Skin contact with compressed liquid or escaping gas can cause frostbite.

CHRONIC EXPOSURE:
No known chronic effects.

EYE CONTACT:
ACUTE EXPOSURE:
May cause burns and permanent injury to eye tissue. May cause permanent impairment of vision or blindness. Eye contact with compressed liquid or escaping gas can cause frostbite.

CHRONIC EXPOSURE:
No known chronic effects.

INGESTION:
ACUTE EXPOSURE:
Not applicable.

CHRONIC EXPOSURE:
Not applicable.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 0.07-0.15 ppm 96 hour(s) LC50 Fathead Minnow; 0.44 mg/L 96 hour(s) LC50 Bluegill. This material is highly toxic to aquatic organisms on an acute basis.

INVERTEBRATE TOXICITY: 30-150 ug/L 48 hour(s) LC50 Daphnia

FATE AND TRANSPORT:
BIODEGRADATION: This material is an element and not subject to biodegradation.

PERSISTENCE: The atmospheric half-life and lifetime of this material due to photolysis is estimated at 10 and 14 minutes, respectively. The half-life of free residual material in fresh water has been estimated at 1.3 to 5 hours.

BIOCONCENTRATION: This material is believed not to bioaccumulate.

OTHER ECOLOGICAL INFORMATION: This material has exhibited toxicity to terrestrial organisms.

13. DISPOSAL CONSIDERATIONS

Use or process if possible. Chlorine may be absorbed into an alkaline solution such as caustic soda, soda ash or hydrated lime. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Chlorine
ID NUMBER: UN1017
HAZARD CLASS OR DIVISION: 2.3
LABELING REQUIREMENTS: 2.3; 8
ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone B
MARINE POLLUTANT: CHLORINE
DOT HAZARDOUS SUBSTANCE(S):
Chlorine 10 lb(s) (4.54 kg(s))

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Chlorine
UN NUMBER: UN1017
CLASS: 2.3; 8
OTHER INFORMATION: Emergency Response Assistance Plan (ERAP) may be required.

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
CHLORINE: 10 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
CHLORINE: 100 LBS TPQ

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
CHLORINE

This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Refer to Section 3.

OSHA PROCESS SAFETY (29CFR1910.119):
CHLORINE: 1500 LBS TQ

STATE REGULATIONS:
California Proposition 65: This product may contain contaminants known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact Customer Service.

NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW:
REPORTING REQUIREMENT:
CHLORINE 7782-50-5 99.5-100%

RIGHT TO KNOW HAZARDOUS SUBSTANCE LIST:
CHLORINE 7782-50-5 99.5-100%

SPECIAL HEALTH HAZARD SUBSTANCE LIST:
Not regulated.

PENNSYLVANIA RIGHT TO KNOW:
REPORTING REQUIREMENT:
CHLORINE 7782-50-5 99.5-100%

HAZARDOUS SUBSTANCE LIST:
CHLORINE 7782-50-5 99.5-100%

ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:
CHLORINE 7782-50-5 99.5-100%

SPECIAL HAZARDOUS SUBSTANCE LIST:
Not regulated.

CANADIAN REGULATIONS:
CONTROLLED PRODUCTS REGULATIONS (CPR): This product has been classified in accordance with the criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS CLASSIFICATION: A, C, D1A, E.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): All the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): All components of this product are listed on the DSL.

16. OTHER INFORMATION

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent

technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SUITABILITY, STABILITY OR OTHERWISE. The information included herein is not intended to be all-inclusive as to the appropriate manner and/or conditions of use, handling and/or storage. Factors pertaining to certain conditions of storage, handling, or use of this product may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended to, and nothing herein shall be construed as a recommendation to, infringe any existing patents or violate any laws, rules, regulations or ordinances of any governmental entity.

M13506
I S 349

MATERIAL SAFETY DATA SHEET

PVS TECHNOLOGIES, INC. DATE PREPARED: October 22, 2001

FERRIC CHLORIDE, ANHYDROUS Product Number: None

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferric Chloride, Anhydrous
Product Number: data not available
Chemical Name/Synonyms: Iron (III) Chloride, solid
Chemical Formula: $FeCl_3$
Cas Number: 7705-08-0

Manufacturer:

PVS Technologies, Inc.
10900 Harper Avenue
Detroit, Michigan 48213
telephone: (313) 571-1100 (for product information and emergencies)
fax: (313) 571-6765

****FOR TRANSPORTATION EMERGENCY ONLY, 24 HOURS EVERYDAY, CALL****

****CHEMTREC, 1-800-424-9300****

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Registry #	% by weight
Ferric Chloride	7705-08-0	99
Ferrous Chloride	7758-94-3	<1
Inert Matter	not available	<1

Hazardous Ingredients: Ferric Chloride, Ferrous Chloride

Exposure Limits (ppm):

Component	OSHA TLV	ACGIH
Ferric Chloride	TWA 1 mg/m³ (as soluble iron salt)	TWA 1 mg/m³ (as soluble iron salt)
Ferrous Chloride	TWA 1 mg/m³ (as soluble iron salt)	TWA 1 mg/m³ (as soluble iron salt

3. HAZARDS IDENTIFICATION

Potential Health Effects (Acute and Chronic)

INHALATION: No hazard in normal industrial use.

INGESTION: Ingestion may cause severe liver and/or kidney damage. May also cause damage to the gastrointestinal tract.

DIRECT CONTACT: Product is a moderate skin irritant. Can cause irritation or corrosive chemical burns to human tissue. High heat of solution (353 BTU/LB) can cause severe thermal burns if in contact with moist skin or mucous tissue.

DIRECT EYE CONTACT: Contact with eyes may cause irritation and may be corrosive and result in permanent visual loss unless removed quickly by thorough irrigation with water.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Caused erythema (a rash) to skin of rabbits.

CARCINOGENS (NTP, IARC, or OSHA): No

4. FIRST AID MEASURES:

INHALATION: No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

INGESTION: If swallowed, do NOT induce vomiting. Give victim water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Dust off excess before washing. Wash with soap and water. Get medical attention if irritation develops or persists.

DIRECT EYE CONTACT: Immediately flush with water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flammability: Product not flammable.
Flash Point: not applicable
Method used: TCC

OXIDIZING PROPERTIES: none

AUTOFLAMMABILITY: not applicable

AUTOIGNITION TEMPERATURE: not applicable

Emergency Overview

Greenish black granular solid. May cause severe liver and/or kidney damage if swallowed. Do not induce vomiting. Can cause irritation or chemical burns to human tissue. Contact with eyes can cause irritation and may even cause permanent visual loss, remove quickly by thorough irrigation with water. **Do not use water on fire.** Use dry chemical or CO_2. Beware of chlorine gas or hydrogen chloride gas at high temperatures. See Sections 3, 4, and 5.

FLAMMABLE LIMITS, % BY VOLUME:

Lower flammable limit: not applicable
Upper flammable limit: not applicable

EXTINGUISHING MEDIA: Use dry chemical or CO_2 fire extinguishers.

CAUTION!! This material heats on contact with water.

FIRE FIGHTING INSTRUCTIONS: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. Move container from fire area if you can do it without risk. Cool exterior of storage tanks. Stay away from ends of tanks.

FIRE AND EXPLOSION HAZARDS: During a fire, irritating and highly toxic gases of hydrogen chloride or chlorine may be generated by thermal decomposition.

SENSITIVITY TO MECHANICAL IMPACT/STATIC DISCHARGE: no applicable

6. ACCIDENTAL RELEASE MEASURES

Vacuum or sweep up material and place in a disposal container. After removal, flush contaminated area with detergent and water. Avoid runoff into storm sewers and ditches which lead to waterways. Spills of 1000 pounds (454 kilograms) or more must be reported to the **National Response Center, (800) 424-8802**. If water pollution occurs, notify the appropriate authorities.

7. HANDLING AND STORAGE

Store in a dry area. Store away from heat, strong alkalis and alkali metals. Keep containers closed and dry. Protect container from physical damage. See Section 10 for types of packaging material to avoid. Avoid contact with water and minimize contact with moisture. Avoid breathing dust. Avoid contact with skin and eyes. Use gloves when handling. Wash thoroughly after handling; dust off excess before washing. Follow all MSDS/label precautions even after container is emptied because they may retain product residues.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Good general ventilation should be sufficient to control airborne levels..

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved, full face respirator with dust filter. Consult respirator manufacturer to determine appropriate equipment.

PROTECTIVE GLOVES: Wear impervious rubber gloves.

EYE PROTECTION: Wear splash proof chemical safety goggles. Do not wear contact

lenses.

OTHER PROTECTIVE EQUIPMENT: Wear protective clothing to minimize skin contact. Rubber footwear and apron should be used as appropriate. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

WORK/HYGIENIC PRACTICES: Avoid breathing dust. Use gloves when handling.

OTHER PRECAUTIONS: None.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	greenish black	
Odor:	none	
Odor Threshold:	not applicable	
Physical State:	granular solid	
Vapor Pressure (REID):	negligible	
Specific Gravity:	2.8 - 2.9	(water = 1)
Solubility in Water:	50% by weight	
pH:	1.0 for 2% solution	
Boiling Point:	305 - 317° C or 581 - 603° F	
Vapor Density:	not applicable	(Air = 1)
Evaporation Rate:	not applicable	(Butyl Acetate = 1)
Melting Point:	301° C or 574° F	
Coefficient of Water/Oil Distribution:	data not available	
Percent Volatile by Volume (%) at 55° C:	negligible	
Viscosity:	data not available	
% Solids:	data not available	
% VOC:	data not available	

For information on FLASH POINT, FLAMMABILITY OXIDIZING PROPERTIES, AUTOFLAMMABILITY, and EXPLOSIVE PROPERTIES, please see Section 5.

10. STABILITY AND REACTIVITY

GENERAL: This product is stable and hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Material is stable when properly handled. Refer to Section 7. Avoid high temperatures. Avoid potassium and sodium.

HAZARDOUS DECOMPOSITION PRODUCTS: Can release toxic chlorine gas at elevated temperatures above 553° F. Can release toxic hydrogen chloride on contact with water or steam at elevated temperatures.

11. TOXICOLOGICAL INFORMATION

LD_{50}: 1932 mg/kg (oral toxicity, rat)

LC_{50}: data not available

Immediate Effects: Exposure caused erythema to skin of rabbits. Ingestion causes severe liver and/or kidney damage in humans. Refer to Section 3 for other immediate effects.

Carcinogenicity: not applicable

12. ECOLOGICAL INFORMATION

Chronic Hazard Level: Mild chronic irritant in 2 - 5 month studies, trout showed growth decreases and invertebrates effects: reproduction at 12 and 3 ppm, respectively. For daphnids, reduction was 16% at 4.38 ppm Fe. Marine waters should not exceed 0.3 ppm Fe.

Chronic Plant Toxicity Limit: 1000 ppm

Potential for Accumulation:

Concentration factors for iron:

	marine	freshwater
plants	50,000	5000
invertebrates	20,000	3200
fish	3000	300

Half-life in total human body = 800 days

Chronic Aquatic Toxicity Limit: 130 ppm (Daphnia magna)

Persistency: Can persist indefinitely

Carcinogenicity: not applicable

13. DISPOSAL CONSIDERATIONS

Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):

Proper Shipping Name: Ferric Chloride
Hazard Class: 8
Identification Number: UN1773
Packing Group: III
Label: data not available
Emergency Response Guide Book Number: 60

Corrosive: skin

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA:

This product is hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

SARA TITLE III (Superfund Amendments and Reauthorization Act of 1986)

Section 302 Extremely Hazardous Substances:

Ingredient	RQ (Reportable Quantity)	TPQ
none		

Section 311/312 Hazard and Physical Hazards:

Immediate:	yes
Delayed:	no
Fire:	no
Pressure:	no
Reactivity:	no

Section 313 Toxic Chemicals:

Ingredient	% by Weight
none	

CERCLA/SUPERFUND (40 CFR 117, 302)

Ingredient	RQ
Ferric Chloride, Anhydrous	1000 pounds

Notification to the **National Response Center, Wash., D.C. (1-800-424-8802)** is required if 1000 pounds or more are released.

RCRA:

If discarded in its purchased form, this product would be a hazardous waste by characteristic. Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

This product contains no Class I or Class II Ozone Depleting Chemicals.

DOT:

Please refer to Section 14.

State Regulations:

California

data not available

Michigan

data not available

International Regulations:

CANADA

WHMIS Hazard Class(es):

data not available

CEPA:

data not available

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EUROPE

EINECS:

data not available

JAPAN

MITI:

data not available

16. OTHER INFORMATION

The following label hazard ratings are recommended for containers of Ferric Chloride, Anhydrous:

(Hazard Index Key: 4 = severe; 3 = serious; 2 = moderate; 1 = slight; 0 = minimal)

NFPA		HMIS	
Health	2	Health	3
Flammability	0	Flammability	0
Reactivity	0	Reactivity	1

MSDS Status: The entire MSDS has been revised October 22, 2001.

To the best of our knowledge, the information contained herein is accurate. However, neither PVS Chemicals, Inc., nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Consult the manufacturer for further information.

APPENDIX C
INCINERATORS OPERATING CONDITIONS

NOTICE OF COMPLIANCE (9/11/03)

OxyChem®

Responsible Care®
Good Chemistry at Work

September 11, 2003

CERTIFIED LETTER – RETURN RECEIPT REQUESTED

Ms. Cynthia Kaleri
Coordinator – Center for Combustion Science and Engineering (6PD-A)
U.S. EPA - Region VI
1445 Ross Ave.
Dallas, Texas 75202-2733

RE: Notice of Compliance - 40 CFR Part 63, Subpart EEE
Occidental Chemical Corporation - Ingleside Plant
EPA ID. # TXD982286932
TCEQ Air Account No. SD-0092-F

Dear Ms. Kaleri:

Occidental Chemical Corporation (OxyChem) operates two hazardous waste incinerators at its Ingleside Plant that are subject to 40 CFR Part 63, Subpart EEE. The purpose of this letter is to meet Notifice of Compliance requirements of 40 CFR 1207 (j)(5). Attached are three copies of the Notice of Compliance and the Comprehensive Performance Test Report. Also per a request from Mr. Mike Carrillo of EPA Region VI, a copy of the May 2003 Alternate Monitoring Application is included with this package.

If you have any questions regarding this notification, please me at (361) 776-6169.

Sincerely,

Mark R. Evans
Environmental Superintendent

MRE/see: TIHH435W

cc: Mr. Bob Mann, TECQ, Air Permits Division, MC 171, Austin, Texas
Mr. Jim Bowman, TECQ Air Program Manager, Corpus Christi, Texas

OXY
Occidental Chemical Corporation
Chlorovinyls Group
P.O. Box CC, Ingleside, Texas 78362-0710
361/776-6000

OSHA STAR WORKSITE

HWC MACT - NOTIFICATION OF COMPLIANCE FOR THE LIQUID AND VAPOR INCINERATORS F-550 AND F-570

PREPARED FOR:

OxyChem.

OCCIDENTAL CHEMICAL CORPORATION
INGLESIDE FACILITY
STATE HIGHWAY 361
GREGORY, TEXAS 78359

September 11, 2003
Revision: 0.0 - Final
Focus Project No. 110111

PREPARED BY:

Focus Environmental, Inc.

ENGINEERING SOLUTIONS TO ENVIRONMENTAL PROBLEMS

FOCUS ENVIRONMENTAL, INC.
1322 SPACE PARK DRIVE,
SUITE C101
HOUSTON, TEXAS 77058
(281) 335-0999
(281) 335-0988 (FAX)

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LIST OF ATTACHMENTS

1.0 INTRODUCTION

The Occidental Chemical Corporation (OxyChem) facility in Ingleside, Texas currently operates two liquid and vapor incinerators (units F-550 [CCIN-1] and F-570 [CCIN-2]) for the treatment of liquid hazardous wastes and process vapor streams. Because the units are utilized to treat hazardous wastes, they are regulated under the RCRA requirements specified in 40 CFR 264 Subpart O and the CAA requirements specified in 40 CFR 63 Subpart EEE (the Hazardous Waste Combustor Maximum Achievable Control Technology, or HWC MACT) for incinerators. As part of the HWC MACT [see 40 CFR 63.10(d)(2), 40 CFR 63.1209(j), and 40 CFR 63.1210(b)], the facility is required to prepare a "Notification of Compliance" that documents compliance with the emission standards and continuous monitoring system requirements, and that identifies the applicable operating parameter limits under 40 CFR 63.1209.

The facility was required to complete a Comprehensive Performance Test (CPT) to demonstrate compliance with the applicable requirements of the HWC MACT rule. The CPT was conducted during the week of October 14, 2002 in accordance with the "CPT/Trial Burn (TB)/Risk Burn (RB) Plan", Revision 1, June 2002 (conditionally approved by TCEQ on October 3, 2002). The "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2" summarizes the results of the CPT and is relied on in conjunction with the CPT/TB/RB Plan by this Notification of Compliance to meet the requirements of 40 CFR 63.1210(b). The remainder of this Notification of Compliance is organized as follows (as outlined by 40 CFR 63.9(h)(2)(i)):

- Section 2.0 - Methods to Determine Compliance;
- Section 3.0 - Results of Performance Test and Continuous Monitoring System Performance Evaluation;
- Section 4.0 - Methods to Determine Continuing Compliance;
- Section 5.0 - Type and Quantity of Hazardous Air Pollutants Emitted;
- Section 6.0 - Major Source Determination;
- Section 7.0 - Description of Air Pollution Control Equipment;
- Section 8.0 - Compliance Statement; and
- Section 9.0 - Certification.

2.0 METHODS TO DETERMINE COMPLIANCE

40 CFR 63.9(h)(2)(i)(A) requires the facility to discuss the methods that were used to determine compliance. The "CPT/Trial Burn (TB)/Risk Burn (RB) Plan" provided: (1) the proposed operating conditions for the test; (2) stack sampling, analytical, and QA/QC methods; (3) feedstream sampling, analytical, and QA/QC methods; (4) test design and protocols; and (5) continuous monitoring systems to be employed to determine compliance.

The CPT was conducted in accordance with the approved "CPT/Trial Burn (TB)/Risk Burn (RB) Plan". A summary of the results of the CPT is provided in the "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2". The report details how the CPT was conducted, identifies the process operating conditions during the CPT, discusses HWC MACT compliance results, details the quality assurance/quality control results, and identifies the anticipated permit operating conditions.

Throughout the report, the appropriate methods associated with each requirement are identified. For example, the sampling reference methods for each parameter are identified, as well as the analytical method (including QA/QC methods) for each parameter. In addition, operating conditions during the test, waste feed spiking, and other methods are discussed in the report. The CPT report is incorporated by reference and is provided as Attachment 1.

The HWC MACT does identify certain performance requirements specific to various types of equipment that may be present on a particular incinerator unit. The required parameters, averaging period associated with the parameter, and method of setting the limit for each parameter for equipment associated with the F-550 and F-570 units are identified in Table 2-1.

3.0 RESULTS OF PERFORMANCE TEST AND CONTINUOUS MONITORING SYSTEM PERFORMANCE EVALUATION

40 CFR 63.9(h)(2)(i)(B) requires the facility to discuss the results of the performance test and continuous monitoring system performance evaluation. This section provides the required information.

3.1 RESULTS OF PERFORMANCE TEST

The "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2" discusses the results of the Performance Test in detail. The report shows that the F-550 and F-570 incinerators are operating in compliance with all of the performance standards for existing incinerators promulgated at 40 CFR 63 Subpart EEE. The report provides the following sections that detail the results of the performance test: (1) Executive Summary; (2) Test Program Summary; (3) Process Operations; (4) HWC MACT Compliance Results; (5) Quality Assurance/Quality Control Results; and (6) Anticipated Permit Operating Conditions.

3.2 RESULTS OF CONTINUOUS MONITORING SYSTEM PERFORMANCE EVALUATION

The results of the Continuous Monitoring System (CMS) Performance Evaluation are provided in the "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2". Specifically, Appendix J provides a summary of the continuous emissions monitoring system (CEMS) performance in relation to requirements identified in the "CEMS Performance Evaluation Test Plan" submitted as part of the "CPT/Trial Burn (TB)/Risk Burn (RB) Plan". Appendix L provides a summary of the continuous parameter monitoring systems (CPMS) performance in relation to requirements identified in the "CMS Performance Evaluation Test Plan" submitted as part of the "CPT/Trial Burn (TB)/Risk Burn (RB) Plan". The data presented in these Comprehensive Performance Test Report appendices show that the incinerators CEMS and CPMS are operating in accordance with the requirements of 40 CFR 63 Subpart EEE.

4.0 METHODS TO DETERMINE CONTINUING COMPLIANCE

40 CFR 63.9(h)(2)(i)(C) requires the facility to identify the methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods. The CPT was designed such that operating conditions and limits demonstrated during the test would be translated into operating limits for the F-550 and F-570 incinerators. These operating limits will be employed by the facility to determine continuing compliance and are provided in Table 2-1. The facility will demonstrate compliance with these operating limits through use of continuous emissions monitoring systems (CEMS) and other continuous monitoring systems (CMS), as specified in the provisions in 40 CFR 63.1209 and 40 CFR 63.8. Compliance with feedrate limits for the HWC MACT constituents (ash, mercury, semivolatile metals, low volatile metals, and total chlorine) will be assured by periodic sampling and analysis of incinerator liquid feedstreams in accordance with specified procedures and methods, and via calculation of constituent feedrate limits as specified in 40 CFR 63.1209(c)(4). Record keeping and reporting associated with continuing compliance will be conducted in accordance with provisions in 40 CFR 63.1211.

5.0 TYPE AND QUANTITY OF HAZARDOUS AIR POLLUTANTS EMITTED

40 CFR 63.9(h)(2)(i)(D) requires the facility to identify the type and quantity of hazardous air pollutants (HAPs) emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard. The emissions measurement results for the HWC MACT regulated HAPs are presented in Section 4.0 of the "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2". Specifically data on the following HWC MACT-regulated HAP emissions are presented:

- Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans
- Low volatile metals (LVM): The summation of arsenic (As), beryllium (Be) and total chromium (Cr)
- Semi-volatile metals (SVM): The summation of cadmium (Cd) and lead (Pb)
- Mercury (Hg), and
- Hydrogen chloride/chlorine (HCl/Cl_2).

The report data show that the incinerators are operating in compliance with the HWC MACT emissions standards for each of the HWC MACT-regulated HAPs noted above.

Additionally, the organic destruction and removal efficiency (DRE) of the system was demonstrated via the measured feed rate and emission rate of the selected principal organic hazardous constituent and HAP monochlorobenzene (MCB). The MCB DRE data show the incinerators are operating in compliance with the HWC MACT DRE performance standard.

6.0 MAJOR SOURCE DETERMINATION

40 CFR 63.9(h)(2)(i)(E) requires the facility to determine whether the facility is a major source using the emissions data generated, if the relevant standard applies to both major and area sources. The September 30, 1999 final rule, "Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors" identifies that the HWC MACT applies to both major and area sources (see 64 Fed. Reg. at 52,832).

The facility has previously determined that it meets the definition of a major source and submitted a Title V permit application identifying the facility as such.

7.0 DESCRIPTION OF AIR POLLUTION CONTROL EQUIPMENT

40 CFR 63.9(h)(2)(i)(F) requires the facility to provide a description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant (HAP) and the control efficiency (percent) for each control device (or method). Section 2.1.3 of the "HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2" provides a description of the air pollution control equipment for incinerators F-550 and F-570. Organic compounds in the liquid hazardous wastes and the process vapor vents, consisting mostly of highly chlorinated alkanes and alkenes including a number of organic HAPs, are destroyed at an efficiency exceeding 99.99% in the combustion chambers of the two incinerators. Each incinerator's air pollution control system treats the resulting combustion gases. Each incinerator's air pollution control system includes two wet scrubbing columns in series for the control of hydrogen chloride/chlorine (HCl/Cl_2), a wet electrostatic precipitator (WESP) for control of particulate matter and metals, and a catalytic oxidizer for control of organic products of incomplete combustion (PIC) especially chlorinated dioxin/furans. Particulate matter and metals emissions are controlled at efficiencies exceeding 99%, and well within the HWC MACT standards for such emissions. Chlorinated dioxin/furan emissions are controlled to levels that comply with the HWC MACT emission standard.

8.0 HAZARDOUS WASTE RESIDENCE TIME

The provisions in 40 CFR 63.1206(c)(11) require a calculation of the hazardous waste residence time to be included in the Notification of Compliance. Calculations of hazardous waste residence time for CCIN-1 and CCIN-2 are provided below.

Estimated Hazardous Waste Residence Time in the Combustion Chamber

Test 1, Minimum Combustion Temperature Test Average Conditions

Measured Stack Gas Flow:	16,517 acfm	@	236 °F
Combustion Chamber Temperature:			1,756 °F
Measured Stack Gas Flow @ Combustion Chamber Temperature:			52,589 acfm

Acid Gas (as HCl) in Combustion Gas Before Removal by Acid Recovery Column and APC System:

Chloride Feed as Cl:	2,720 lb/hr		
Chloride Feed as HCl:	2,797 lb/hr		
Chloride Feed as HCl:	76.6 lbmol/hr		
HCl Volume @ Combustion Chamber Temperature:		2,065 acfm	@ 1,756 °F

Total Estimated Volumetric Flow through Combustion Chamber:		54,654 acfm	@ 1,756 °F
Total Combustion Chamber Volume:		2,379 ft^3	
Hazardous Waste Residence Time in the Combustion Zone:		2.6 seconds	

Estimated Hazardous Waste Residence Time in the Combustion Chamber

Test 2, Maximum Waste Feed Rate Test Average Conditions

Measured Stack Gas Flow: 21,779 acfm @ 253 °F
Combustion Chamber Temperature: 2,114 °F
Measured Stack Gas Flow @ Combustion Chamber Temperature: 78,614 acfm

Acid Gas (as HCl) in Combustion Gas Before Removal by Acid Recovery Column and APC System:

Chloride Feed as Cl: 4,026 lb/hr
Chloride Feed as HCl: 4,139 lb/hr
Chloride Feed as HCl: 113.4 lbmol/hr
HCl Volume @ Combustion Chamber Temperature: 3,550 acfm @ 2,114 °F

Total Estimated Volumetric Flow through Combustion Chamber: 82,164 acfm @ 2,114 °F

Total Combustion Chamber Volume: 2,379 ft^3

Hazardous Waste Residence Time in the Combustion Zone: 1.7 seconds

In 1.7 to 2.6 seconds after waste feed cutoff, the solid, liquid and gaseous materials from hazardous waste, excluding residues that may adhere to the combustion chamber surfaces, exit the combustion chamber.

9.0 COMPLIANCE STATEMENT

40 CFR 63.9(h)(2)(i)(G) requires the facility to provide a statement as to whether the source has complied with the relevant standard or other requirements. Based on the results of the Comprehensive Performance Test, as detailed in the "MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2", the facility has complied with the relevant performance standards in 40 CFR 63 Subpart EEE for incinerators F-550 and F-570 at the OxyChem facility in Ingleside, Texas. As of the postmark of this Notification of Compliance, the facility is in compliance with the appropriate operating parameter limits.

10.0 CERTIFICATION

In accordance with 40 CFR 63.1207(j) and 40 CFR 63.1210(b), the OxyChem facility in Ingleside, Texas submits this Notification of Compliance. This Notification of Compliance is accurate and the F-550 and F-570 incinerators are in compliance with the applicable requirements of 40 CFR 63 Subpart EEE.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Responsible Official: Thomas F Feeney

Printed Name: THOMAS F FEENEY

Date: September 11, 2003

Table 2-1. Anticipated Operating Limits

Parameter	Value	AWFCO	Averaging Period	Method of Setting Limit
Group 1 Parameters				
Maximum Waste Feed Rate (lb/hr)	5,810	Yes	Hourly Rolling Average	Average of the maximum rolling average feed rate during the three runs of Test Condition 2. [40 CFR 63.1209(j)(3), (k)(4)]
Maximum Chloride Feed Rate (lb/hr)	4,026	Yes	12-Hour Rolling Average	Average of the average feed rate during the three runs of Test Condition 2. [40 CFR 63.1209(o)(1), (n)(4)]
Maximum Ash Feed Rate (lb/hr)	20.3	Yes	12-Hour Rolling Average	Average of the average feed rate during the three runs of Test Condition 2. [40 CFR 63.1209(m)(3)]
Maximum Mercury (Hg) MTEC (lb/hr)	3.86E-3 [1.75 g/hr]	Yes	12-Hour Rolling Average	Allowable mercury feed rate based on MTEC at 8,000 dscfm stack flow rate [40 CFR 63.1207(m)(2), (n); 63.1209 (l)(1)]
Maximum Semivolatile Metals (SVM = Pb+Cd) Feed Rate (lb/hr)	30.0	Yes	12-Hour Rolling Average	Mass feed rate limit based on the average of the average feed rate during the three runs of Test Condition 2 and extrapolated upward to meet compliance with the SVM standard. [40 CFR 63.1209(n)(2)(i)(A), (ii)]
Maximum Low Volatility Metals (LVM = As+Be +Cr) Feed Rate (lb/hr)	16.3	Yes	12-Hour Rolling Average	Mass feed rate limit based on the average of the average feed rate during the three runs of Test Condition 2 and extrapolated upward to meet compliance with the LVM standard. [40 CFR 63.1209(n)(2)(i)(B)-(C), (ii)]
Minimum Combustion Temperature (° F)	1,756	Yes	Hourly Rolling Average	Average of the average combustion temperature during the three runs of Test Condition 1. [40 CFR 63.1209(j)(1), (k)(2)]
Minimum Scrubber Liquid to Gas Flow (L/G) (Mlb/hr per Macfm)	14.11	Yes	Hourly Rolling Average	Average of the average L/G during the three runs of Test Condition 2. [40 CFR 63.1209(m)(1)(i)(C), (n)(3), (o)(3)(v)]

Continued on next page

Table 2-1. Anticipated Operating Limits (Continued)

Parameter	Value	AWFCO	Averaging Period	Method of Setting Limit
Group 1 Parameters (continued)				
Minimum Scrubber Recycle pH	8.84	Yes	Hourly Rolling Average	Average of the average pH during the three runs of Test Condition 2. [40 CFR 63.1209(l)(2), (o)(3)(iv)]
Minimum Scrubber Blowdown Rate (gpm)	17.0	Yes	Hourly Rolling Average	Average of the average blowdown rate during the three runs of Test Condition 2. [40 CFR 63.1209(m)(1)(i)(B)(ii), (m)(4), (n)(3)]
Minimum Scrubber Water Level (percent)	15 Note a	Yes	Hourly Rolling Average	Average of the average water level during the three runs of Test Condition 2. [40 CFR 63.1209(m)(1)(i)(B)(ii), (m)(4), (n)(3)]
Minimum WESP Secondary Power (KVA)	16.3	Yes	Hourly Rolling Average	Average of the average KVA during three runs of Test Condition 2. [40 CFR 63.1209(l)(2), (m)(1)(i)(D)(iii), (n)(3), (o)(3)(vi)]
Minimum Catalytic Oxidizer Inlet Gas Temperature (° F)	420	Yes	Hourly Rolling Average	Average of the average CatOx inlet temperature during the six runs of Test Conditions 1 and 2. [40 CFR 63.1209(k)(8)(i)]
Maximum Stack Gas Flow (Macfm)	23.55	Yes	Hourly Rolling Average	Average of the maximum rolling average flow rates during the three runs of Test Condition 1. [40 CFR 63.1209(j)(2), (k)(3), (m)(1)(i)(C), (n)(5), (o)(2)]
Group 2 Parameters				
Maximum Combustion Chamber Pressure (inwc)	<0.0	Yes	None	HWC MACT Rule [40 CFR 63.1206(c)(5)(i)(B); 63.1209(p)]
Maximum Stack Gas CO Conc. (ppmv, dry @ 7% O2)	<100	Yes	Hourly Rolling Average	HWC MACT Rule [40 CFR 63.1203(a)(5)(i)]

Continued on next page

Table 2-1. Anticipated Operating Limits (Continued)

Parameter	Value	AWFCO	Averaging Period	Method of Setting Limit
Group 3 Parameters				
Minimum Waste Atomization Steam Pressure (psig)	40	Yes	None	Operating experience [40 CFR 63.1209(j)(4)]
Minimum Scrubber Recycle Pressure (psig)	7	Yes	Hourly Rolling Average	Manufacturer's specifications [40 CFR 63.1209(l)(2), (o)(3)(iii)]
Maximum Catalytic Oxidizer Catalyst In-use Time (hours)	40,000 Note b	No	N/A	Manufacturer's specifications [40 CFR 63.1209(k)(8)(ii)]
Catalytic Oxidizer Catalyst Replacement Specification	Note c	No	N/A	Manufacturer's specifications [40 CFR 63.1209(k)(8)(iii)]
Maximum Catalytic Oxidizer Inlet Gas Temperature (° F)	800	Yes	Hourly Rolling Average	Manufacturer's specifications [40 CFR 63.1209(k)(8)(iv)]

Notes:

[a] The value presented is based on the level demonstrated during Test Condition 2. The amended Alternative Monitoring Application proposes waiving monitoring of this parameter.

[b] The value presented is based on the manufacturer's commercial guarantee. The amended Alternative Monitoring Application proposes extending the life of the catalyst beyond the manufacturer's guarantee by a program of PCDD/PCDF stack sampling and analyses, and catalyst effectiveness testing. The catalyst will be replaced when the testing indicates the PCDD/PCDF emissions will approach the HWC MACT standard.

[c] When catalyst replacement is determined to be necessary based on PCDD/PCDF stack sampling and analyses, and catalyst effectiveness testing in accordance with the manufacturer's specifications, OxyChem will replace the old catalyst with the same type catalyst or equivalent.

AWFCO - Automatic waste feed cutoff

N/A-Not applicable

Attachment 1. HWC MACT Comprehensive Performance Test Report, Liquid and Vapor Incinerators CCIN-1 and CCIN-2

APPENDIX D
BACKUP MONTHLY WASTE GENERATION DATA

Table D-1
Wastewater Treatment Biosludge Waste Generation 2001-2005
OxyChem
Ingleside, Texas

Date: / Units:	lbs	cu/yds	lbs	cu/yds	lbs	cu/yds	lbs	cu/yds	lbs	cu/yds
	2001	2001	2002	2002	2003	2003	2004	2004	2005	2005
January	398,520	199	439,420	220	524,320	262	89,260	45	143,660	72
February	483,040	242	358,620	179	582,560	291	89,580	45	330,860	165
March	146,580	73	452,780	226	478,700	239	139,180	70	648,920	324
April	655,300	328	710,700	355	630,560	315	95,680	48	414,180	207
May	496,600	248	710,080	355	443,720	222	385,640	193	272,280	136
June	311,260	156	556,440	278	481,660	241	739,360	370	225,780	113
July	398,740	199	352,680	176	312,820	156	409,360	205	332,680	166
August	411,440	206	227,360	114	556,720	278	237,280	119	439,980	220
September	201,660	101	426,700	213	875,880	438	470,760	235	283,900	142
October	746,098	373	480,780	240	66,060	33	367,760	184	384,240	192
November	428,840	214	716,360	358	312,600	156	416,360	208	400,120	200
December	537,160	269	243,220	122	252,280	126	359,220	180	187,200	94
Total	5,215,238	2,608	5,675,140	2,838	5,517,880	2,759	3,799,440	1,900	4,063,800	2,032

5 year annual average = 2427 cy
5 year annual max = 2838 cy
30% increase on annual max = 3689 cy
20 years at 30% annual max = 73780 cy

APPENDIX E
DRAS 2.0 RUNS ON
WASTEWATER TREATMENT BIOSLUDGE

MAY 2006

DRAS RUNS ON LIMESTONE CLARIFIER EFFLUENT AND WASTEWATER TREATMENT BIOSLUDGE

MAY 2006

Site and WMU Information

Delisting Petition Number:

DL-

File Name:

EDC/VCM Biosolids

Petitioner's Name:

Occidental Chemical Corporation

Address 1:

Address 2:

City, State:

Ingleside,

Zip Code:

Analysis Performed by:

Lisa Arceneaux

Date of Analysis:

May-09-2006

Waste Description:

biosolids from the wastewater treatment system

Waste Code:

K019, K020, F025

WMU Type:

Landfill

Waste Volume (yd^3):

3689

Active Life (years):

20

Risk Factor:

1.00E-05

HQ Factor:

1.00E-01

Select Chemicals of Concern to be Modeled (Steps 4 5)

Chemical Name	CAS Number	TCLP Concentration (mg/L)	TCLP Detection Limit	Total Concentration (mg/kg)	Total Detection Limit	Maximum Contaminant Level (MCL) (mg/L)	Carcinogenic Slope Factor - Oral (CSFo) (kg-day/mg)	Carcinogenic Slope Factor - Inhalation (CSFi) (kg-day/mg)	Reference Dose - Oral (RFDo) (mg/kg-day)
Zinc	7440-66-6	2.14E+00	0.00E+00	9.28E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01
Magnesium	7439-95-4	3.20E+00	0.00E+00	5.00E+02	-1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acetone	67-64-1	6.70E-01	0.00E+00	3.34E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-01
Methyl ethyl ketone	78-93-3	2.80E-02	0.00E+00	2.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-01
Mercury	7439-97-6	2.00E-03	-1.00E+00	3.20E-02	0.00E+00	2.00E-03	0.00E+00	0.00E+00	1.00E-04
Arsenic	7440-38-2	6.00E-03	0.00E+00	9.70E+00	0.00E+00	5.00E-02	1.50E+00	1.51E+01	3.00E-04
Barium	7440-39-3	2.12E+00	0.00E+00	3.31E+01	0.00E+00	2.00E+00	0.00E+00	0.00E+00	7.00E-02
Beryllium	7440-41-8	2.00E-02	-1.00E+00	1.60E+00	0.00E+00	4.00E-03	0.00E+00	8.40E+00	2.00E-03
Chromium	7440-47-4	8.00E-03	0.00E+00	2.20E+01	0.00E+00	1.00E-01	0.00E+00	0.00E+00	1.50E+00
Vinyl acetate	108-05-4	5.00E-03	-1.00E+00	8.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00
Vanadium	7440-62-2	5.00E-02	-1.00E+00	2.43E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E-03
Dichloropropene, 1,3-	542-75-6	3.80E-03	0.00E+00	8.00E-03	-1.00E+00	0.00E+00	1.00E-01	1.40E-02	3.00E-02
Chloroform	67-66-3	5.00E-03	-1.00E+00	4.20E-03	0.00E+00	1.00E-01	6.10E-03	8.05E-02	1.00E-02
Dichloroethane, 1,2-	107-06-2	5.00E-03	-1.00E+00	1.50E-02	0.00E+00	5.00E-03	9.10E-02	9.10E-02	0.00E+00
Trichloroethylene	79-01-6	5.00E-03	-1.00E+00	5.00E-03	0.00E+00	5.00E-03	1.10E-02	6.00E-03	6.00E-03
Thallium	7440-28-0	8.52E-01	0.00E+00	5.00E-02	-1.00E+00	2.00E-03	0.00E+00	0.00E+00	8.00E-05
Cobalt	7440-48-4	7.68E-01	0.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-02
Methylene chloride	75-09-2	4.40E-02	0.00E+00	9.00E-03	0.00E+00	5.00E-03	7.50E-03	1.64E-03	6.00E-02
Benzoic acid	65-85-0	1.08E-01	0.00E+00	3.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00
Bis(2-ethylhexyl)phthala	117-81-7	1.00E-02	-1.00E+00	2.30E-01	0.00E+00	6.00E-03	1.40E-02	0.00E+00	2.00E-02
Hexachlorobenzene	118-74-1	1.00E-02	-1.00E+00	1.80E-01	0.00E+00	1.00E-03	1.60E+00	1.61E+00	8.00E-04
TCDD, 2,3,7,8-	1746-01-6	1.21E-08	0.00E+00	1.23E-03	0.00E+00	0.00E+00	1.50E+05	1.50E+05	0.00E+00

Results for Analysis: EDC/VCM Biosolids □1

Select Chemicals of Concern to be Modeled (Steps 4 5)

Chemical Name	CAS Number	TCLP Concentration (mg/L)	TCLP Detection Limit	Total Concentration (mg/kg)	Total Detection Limit	Maximum Contaminant Level (MCL) (mg/L)	Carcinogenic Slope Factor - Oral (CSFo) (kg-day/mg)	Carcinogenic Slope Factor - Inhalation (CSFi) (kg-day/mg)	Reference Dose - Oral (RFDo) (mg/kg-day)
Copper	7440-50-8	4.30E-01	0.00E+00	9.10E+01	0.00E+00	1.30E+00	0.00E+00	0.00E+00	4.00E-02
Iron	7439-89-6	1.00E+00	-1.00E+00	1.16E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01
Lead	7439-92-1	5.00E-01	-1.00E+00	4.00E+00	0.00E+00	1.50E-02	0.00E+00	0.00E+00	0.00E+00
Manganese	7439-96-5	1.70E+00	0.00E+00	2.22E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-01
Nickel	7440-02-0	3.40E-01	0.00E+00	7.10E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-02

Pathways Exceeding the Delisting Limits

		Exceeding Pathways Analysis - Chemicals that exceed the delisting level listed by exceeding pathway					
Chemical Name	CAS Number	Actual TCLP Concentration (mg/L)	Limiting TCLP Concentration (mg/L)	Limiting TCLP Pathway	Actual Total Concentration (mg/kg)	Limiting Total Concentration (mg/Kg)	Limiting Total Pathway
Thallium	7440-28-0	8.52E-01	2.73E-02	GW Ingestion	---	---	---
Hexachlorobenzene	*118-74-1*	*1.00E-02*	*1.36E-03*	*GW Dermal-Adult*	---	---	---
Hexachlorobenzene	118-74-1	1.00E-02 Detection Limit	3.13E-03	GW Dermal-Child	---	---	---
TCDD, 2,3,7,8-	1746-01-6	1.21E-08	4.23E-09	GW Dermal-Adult	---	---	---
TCDD, 2,3,7,8-	1746-01-6	1.21E-08	9.71E-09	GW Dermal-Child	---	---	---

passes gw ingestion pathway

Maximum Allowable Total Concentrations - Surface Exposure Pathways

Chemical Name Risk Factor = 1.00E-05 HQ Factor = 1.00E-01 * = Detection Limit	Waste Stream Total Concentration (mg/Kg)	Maximum Allowable Total Concentration (mg/kg)	DL	Maximum Allowable Total Concentration (mg/Kg)				
				Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway
Zinc	9.28E+01	**1.44E+06**		9.71E+08	---	1.44E+06	3.75E+07	---
Magnesium	***5.00E+02***		*	---	---	---	---	---
Acetone	3.34E+00	**1.25E+07**		3.24E+08	---	7.85E+08	1.25E+07	---
Methyl ethyl ketone	2.00E-01	**1.31E+03**		1.94E+09	1.85E+09	1.96E+09	7.49E+07	1.31E+03
Mercury	3.20E-02	**1.53E-01**		3.24E+05	1.59E+05	1.53E-01	1.25E+04	1.37E+04
Arsenic	9.70E+00	**2.62E+04**		4.20E+05	7.98E+04	2.62E+04	7.37E+04	---
Barium	3.31E+01	**9.23E+05**		2.27E+08	9.23E+05	2.20E+08	8.74E+06	---
Beryllium	1.60E+00	**3.69E+04**		6.47E+06	3.69E+04	1.48E+05	2.50E+05	---
Chromium	2.20E+01	**8.66E+05**		4.85E+09	---	8.66E+05	1.87E+08	---
Vinyl acetate	8.00E-03	**1.50E+02**		3.24E+09	3.69E+08	1.57E+09	1.25E+08	1.50E+02
Vanadium	2.43E+01	**8.74E+05**		2.27E+07	---	2.20E+07	8.74E+05	---
Dichloropropene, 1,3-	***8.00E-03***	***6.42E+01***	*	***9.71E+07***	***3.69E+07***	***7.84E+06***	***3.75E+06***	***6.42E+01***
Chloroform	4.20E-03	**4.47E+00**		1.03E+08	1.50E+07	3.58E+07	1.81E+07	4.47E+00
Dichloroethane, 1,2-	1.50E-02	**8.62E+00**		6.92E+06	1.32E+07	1.13E+06	1.21E+06	8.62E+00
Trichloroethylene	5.00E-03	**1.87E+02**		5.73E+07	2.01E+08	1.72E+06	1.00E+07	1.87E+02
Thallium	***5.00E-02***	***1.79E+02***	*	***2.59E+05***	---	***1.79E+02***	***9.99E+03***	---
Cobalt	1.00E+00	**7.49E+06**		1.94E+08	---	1.88E+08	7.49E+06	---
Methylene chloride	9.00E-03	**1.01E+02**		8.40E+07	7.34E+08	1.98E+07	1.47E+07	1.01E+02
Benzoic acid	3.20E-01	**5.00E+08**		1.29E+10	---	7.95E+08	5.00E+08	---
Bis(2-ethylhexyl)phthalate	2.30E-01	**4.31E+05**		4.50E+07	8.60E+07	4.31E+05	7.89E+06	9.75E+06

Maximum Allowable Total Concentrations - Surface Exposure Pathways

Chemical Name Risk Factor = 1.00E-05 HQ Factor = 1.00E-01 * = Detection Limit	Waste Stream Total Concentration (mg/Kg)	Maximum Allowable Total Concentration (mg/kg)	DL	Maximum Allowable Total Concentration (mg/Kg)				
				Surface Water Ingestion Pathway	Air Particulate Inhalation Pathway	Fish Ingestion Pathway	Soil Ingestion Pathway	Air Volatile Inhalation Pathway
Hexachlorobenzene	1.80E-01	**4.29E+01**		2.59E+06	---	4.29E+01	9.99E+04	---
TCDD, 2,3,7,8-	1.23E-03	**7.37E-01**		4.20E+00	8.03E+00	1.50E+01	7.37E-01	1.00E+06
Copper	9.10E+01	**5.00E+06**		1.29E+08	---	1.26E+08	5.00E+06	---
Iron	1.16E+04	**3.75E+07**		9.71E+08	---	9.42E+08	3.75E+07	---
Lead	4.00E+00	**4.43E+05**		---	4.43E+05	---	1.60E+06	---
Manganese	2.22E+02	**9.23E+04**		4.53E+08	9.23E+04	4.40E+08	1.75E+07	---
Nickel	7.10E+01	**2.04E+05**		6.47E+07	---	2.04E+05	2.50E+06	---

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Chemical Name Risk Factor = 1.00E-05 HQ Factor = 1.00E-01 * = Detection Limit	Waste Stream TCLP Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Maximum Allowable Concentration (mg/L)	DL	Max. Allowable Concentration Based on Groundwater Ingestion Pathway	Max. Allowable Concentration Based on Groundwater Inhalation Pathway	Max. Allowable Concentration Based on Adult Groundwater Dermal Absorption Pathway	Max. Allowable Concentration Based on Child Groundwater Dermal Absorption Pathway
Dichloroethane, 1,2-	*5.00E-03*	*1.00E+00*	*2.07E+00*	*1.03E-02*	*	---	---	---	---
Vinyl acetate	*5.00E-03*	*1.80E+01*	*3.72E+01*	*1.58E+01*	*	*1.40E+02*	*1.58E+01*	---	---
Bis(2-ethylhexyl)phthalate	*1.00E-02*	*1.90E+01*	*3.93E+01*	*2.36E-01*	*	*2.95E+00*	---	*1.41E+00*	*6.48E-01*
Hexachlorobenzene	*1.00E-02*	*1.80E+01*	*3.72E+01*	*1.36E-03*	*	*1.70E-02*	*3.61E-02*	*1.36E-03*	*3.13E-03*
TCDD, 2,3,7,8-	1.21E-08	1.80E+01	3.72E+01	**4.23E-09**		1.81E-07	4.00E-06	4.23E-09	9.71E-09
Dichloropropene, 1,3-	3.80E-03	1.80E+01	3.72E+01	**2.72E-01**		2.72E-01	3.02E+00	3.55E+00	8.14E+00
Benzoic acid	1.08E-01	1.80E+01	3.72E+01	**5.59E+02**		5.59E+02	---	---	---
Acetone	6.70E-01	1.90E+01	3.93E+01	**1.48E+01**		1.48E+01	---	4.19E+03	1.92E+03
Chloroform	*5.00E-03*	*1.80E+01*	*3.72E+01*	*5.03E-01*	*	*4.46E+00*	*5.03E-01*	*7.29E+01*	*1.67E+02*
Iron	*1.00E+00*	---	---		*	---	---	---	---
Lead	*5.00E-01*	*5.00E+03*	*1.03E+04*	*1.55E+02*	*	---	---	---	---
Magnesium	3.20E+00	---	---			---	---	---	---
Manganese	1.70E+00	---	---			---	---	---	---
Mercury	*2.00E-03*	*7.45E+01*	*1.54E+02*	*1.68E-02*	*	*5.79E-02*	*1.68E-02*	---	---
Nickel	3.40E-01	3.76E+01	7.79E+01	**5.85E+00**		5.85E+00	---	---	---
Thallium	8.52E-01	4.40E+01	9.10E+01	**2.73E-02**		2.73E-02	---	---	---
Arsenic	6.00E-03	1.92E+01	3.97E+01	**1.94E-02**		1.94E-02	---	---	---
Barium	2.12E+00	2.78E+01	5.76E+01	**1.51E+01**		1.51E+01	---	---	---
Beryllium	*2.00E-02*	*1.04E+02*	*2.15E+02*	*8.61E-01*	*	*1.62E+00*	---	---	---
Chromium	8.00E-03	3.85E+03	7.97E+03	**7.97E+02**		4.49E+04	---	---	---
Cobalt	7.68E-01	---	---			---	---	---	---
Copper	4.30E-01	7.01E+03	1.45E+04	**2.18E+03**		2.18E+03	---	---	---

Results for Analysis: EDC/VCM Biosolids □1

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Max. Allowable Concentration Based on MCL	
1.03E-02	

2.36E-01	
3.72E-02	

3.72E+00	

1.55E+02	

3.08E-01	

1.82E-01	Thallium
1.99E+00	
1.15E+02	
8.61E-01	
7.97E+02	

1.88E+04	

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Chemical Name Risk Factor = 1.00E-05 HQ Factor = 1.00E-01 * = Detection Limit	Waste Stream TCLP Concentration (mg/L)	Dilution Attenuation Factor (DAF)	Waste Volume Adjusted DAF	Maximum Allowable Concentration (mg/L)	DL	Max. Allowable Concentration Based on Groundwater Ingestion Pathway	Max. Allowable Concentration Based on Groundwater Inhalation Pathway	Max. Allowable Concentration Based on Adult Groundwater Dermal Absorption Pathway	Max. Allowable Concentration Based on Child Groundwater Dermal Absorption Pathway
Vanadium	***5.00E-02***	***8.03E+01***	***1.66E+02***	***4.37E+00***	*	***4.37E+00***	---	---	---
Zinc	2.14E+00	2.49E+01	5.15E+01	5.80E+01		5.80E+01	---	---	---
Methylene chloride	4.40E-02	1.80E+01	3.72E+01	**1.86E-01**		8.39E+00	5.22E+01	2.51E+02	1.15E+02
Methyl ethyl ketone	2.80E-02	1.90E+01	3.93E+01	8.86E+01		8.86E+01	4.05E+02	1.19E+04	5.46E+03
Trichloroethylene	***5.00E-03***	***1.90E+01***	***3.93E+01***	***1.97E-01***	*	***8.86E-01***	---	***1.29E+00***	***5.78E-01***

Maximum Allowable TCLP Concentrations - Groundwater Exposure Pathways

Max. Allowable Concentration Based on MCL
—
—
1.86E-01
—
1.97E-01

Appendix F
MULTIPLE pH TEST PROTOCOL

(from EPA Delisting Program

Guidance Manual for the Petitioner

March 23, 200

petition submitted by **[Facility Name]** may be obtained by contacting:

U.S. Environmental Protection Agency, Region 6
Multimedia Planning and Permitting Division (6PD-O)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202
ATTN: Mr. Bill Gallagher, Delisting Chief

Appendix F

ATTACHMENT 4

Multiple pH Test Protocol

Perform Method 1311-TCLP from SW-846, but modify the method in using three of the following leaching solutions for all constituents (including cyanide):

2 - Extraction fluid #2 glacial acetic acid reagent water with a pH of 2.88 +/- 0.05 and described in Method 1311 Volume 1C Chapter 8.4 Section 5.7-Extraction Fluid Page 6 Revision 0 July 1992 in the SW-846;

4 - Extraction fluid #1 glacial acetic acid reagent water and sodium hydroxide with a pH of 4.93 +/- 0.05 and described in Method 1311 Volume 1C Chapter 8.4 Section 5.7 Extraction Fluid Page 5 Revision 0 July 1992 in the SW-846;

7 - Reagent water with a pH* 7.0 +/- 0.5 described in Method 1311 Volume 1C Chapter 8.4 Section 5.2 Reagent water Page 5 Revision 0 July 1992 in the SW-846;

10 - 0.025 molality sodium bicarbonate + 0.025 molality sodium carbonate with a pH of 10.01 +/- 0.05 and described in Standard Methods for the Examination of Water and Wastewater 18th Edition 1992 Page 4-67; and

13 - 0.1 Normality NaOH with a pH of 13.00 +/- 0.05.

Note: Measure and record the pH of the leaching solution and also measure and record the pH of the TCLP extract as requested in Volume 1C Chapter 8.4 Section 7.2.14 on page 13 in Revision 0 July 1992 of the SW-846.

RATIONALE

- Disposal of a delisted waste is allowed under a number of

environmental conditions. The Agency wishes to verify that the petitioned waste will remain stable in a variety of pH environments. Our suggested range of pH (2.88, 4.93, 7.0, 10.01, 13.00) leaching solutions are established from the pH range specified in the Method 1311-TCLP from SW-846.

*The measurement of pH in Type II (ASTM D 1193 - 91) reagent waters has been eliminated from the specification, however a pH measurement is required here in order to have a pH reading in our five point pH modified TCLP.

ATTACHMENT 5

RISK-BASED DELISTING PROCEDURE

A comprehensive program for the delisting of RCRA wastes has been developed. A cornerstone of this program is the Delisting Risk-based Process. This process has been compiled into a user-friendly software program. The *Delisting Risk Assessment Software* (DRAS) is a Windows-based software that performs a risk assessment on wastes petitioned for delisting. All equations and parameters used in the complex multi-pathway risk assessment are presented in the *Delisting Technical Support Document*. The risk process considers the potential for release of RCRA wastes from a landfill or a surface impoundment. The delisting process evaluates whether a waste would release hazardous chemicals at concentrations exceeding acceptable levels (health-based numbers or HBNs) at a point of exposure (POE). The risk-based process evaluates potential releases from the waste management unit via surface pathways and groundwater pathways.

The process considers the potential for release from of the RCRA wastes from a landfill or a surface impoundment. The analysis predicts surface water releases, air volatilization, air particulate releases, and groundwater contamination. The EPA Composite Model for Leachate Migration with Transformation Products (EPACMTP) fate and transport model was used to derive dilution attenuation factors (DAFs) for prediction of groundwater waste constituent concentrations. Risk is assessed for the following routes of exposure: (1) ingestion of contaminated groundwater; (2) dermal contact during bathing with contaminated groundwater, (3) inhalation of volatiles during showering with contaminated groundwater; (4) ingestion of contaminated fish; (5) ingestion of contaminated surface water bodies; (4) inhalation of windblown particulates and volatiles from a waste management unit, and (5) ingestion of soils contaminated with windblown waste constituent particulates. Generally, the greatest risks determined for waste constituents considered for delisting resulted from potential groundwater exposure—that is, chemical releases to groundwater and subsequent exposure via groundwater exposure pathways.

In the Delisting Risk-based Process, the DRAS performs two analyses of petitioned wastes: (1) a screening analysis that back-calculates maximum Toxicity Characteristic Leaching Procedure (TCLP) and Total waste constituent concentrations at prescribed risk levels for all exposure pathways; and (2) a cumulative risk and hazard analysis that calculates the wastes cumulative carcinogenic risk and noncancer hazard index. The maximum TCLP and Total waste constituent concentrations, called the "delisting levels",

Occidental Chemical Corporation ***OxyChem.***
A subsidiary of Occidental Petroleum Corporation

P. O. Drawer CC, Ingleside, Texas 78362-0710
Hwy 361, Gregory, Texas 78359
Phone 361.776-6000 Fax 361.776-6240

October 23, 2006

Ms. Michelle Peace
Delisting Section
Corrective Action and Waste Minimization Section, 6PD-C
United States Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202

Re: Submittal of Sampling and Analysis Plan in support of,
Wastewater Treatment Biosludge Delisting
Occidental Chemical Corporation – Ingleside, TX Plant
EPA I.D. TXD982286932

Dear Ms. Peace:

Please find enclosed three copies of our sampling and analysis plan (SAP) in support of our Delisting Project. The delisting project scope has changed to cover only the Wastewater Treatment Biosludge. We decided upon further thought and consideration to not delist the Limestone Clarifier Effluent. We believe this greatly simplifies the work to be done for our project, including the SAP. Please provide your approval of the enclosed SAP at your earliest convenience. We will respond quickly to any questions you may have on the SAP.

As we discussed during the Pre-Petition meeting with you on June 21, 2006, we have amended our RCRA permit to allow us to incinerate liquid wastes from our sister plants in Convent, Louisiana, La Porte, Texas and Deer Park, Texas. The waste streams from off-site will include essentially the same waste streams as those incinerated from on-site sources. Therefore, we do not anticipate any impact on our delisting plan due to this permit change.

We understand that version 3.0 of DRAS is nearing completion and distribution. We have based our intent to delist on the results of DRAS 2.0 modeling; the output file is included in the enclosed SAP. We will rerun our existing sludge characterization data through DRAS 3.0, once finalized, to ensure that we pass the delisting levels. We may also need to adjust the analytical methods we have presented in the SAP, depending on changes related to DRAS 3.0 delisting levels. In particular, we would like to know what the new methodology will be for determination of arsenic delisting levels, if EPA has made a decision on that parameter.

Alternatively, we request that our delisting program for the Wastewater Treatment Biosludge be allowed to proceed using DRAS version 2.0 if at all possible. We would like to proceed expeditiously with implementation of our SAP.

Please review the SAP and provide us with your verbal or written comments. We have incorporated Young Moo's comments that you sent to us via e-mail dated June 28, 2006 into the SAP, as appropriate. We intend to work with EPA to expeditiously answer any questions or comments, so we request that we proceed together on an informal basis. Telephone conferences and e-mail can serve as our mode of communication to expedite review and approval. If you think a meeting is needed at your offices, please advise ASAP. Once we receive your approval we plan to move forward immediately with the biosludge sampling effort.

Sincerely,

Aron Baggett
Environmental Superintendent

cc: Elizabeth Arceneaux, P.E.
John Westendorf, Corporate HESS — Dallas